CLAIMS

What is claimed is:

1) A computer system operation method for use in a system comprised of a plurality of workstations arranged in a peer-to-peer architecture, said method providing a means for allowing multiple users simultaneously to modify a model of an object at separate workstations, such that any modification made at any workstation is duplicated at each other workstation in the system, the method comprising:

receiving at a first workstation input from a user specifying a modification of a model;

translating said input into a command specifying the portion of the model to be modified, and the modification to be made;

modifying said model at said first workstation in accordance with said command;

transmitting said command via a network to other workstations in the system;

processing said command at a second workstation; and

modifying said model at said second workstation in accordance with said command.

2) The computer system operation method of Claim 1, wherein said plurality of workstations each run applications comprising a distributor component, a feature modeler, and a geometric modeler.

3) The computer system operation method of Claim 1, wherein said plurality of workstations each run applications comprising a distributor component, and a feature modeler.

4) The computer system operation method of Claim 2, wherein said distributor component, feature modeler, and geometric modeler on each of said plurality of workstations are the same.

5) The computer system operation method of Claim 4, wherein said geometric modeler on each of said plurality of workstations employs persistent generic naming.

6) The computer system operation method of Claim 1, wherein said input comprises one or more constraints relating to cell information, said method further comprising:

for each constraint, determining which cells of the model meet the requirement of the constraint; and

generating a list of cells meeting all of the requirements of the constraints.

7) The computer system operation method of Claim 6, wherein the constraints are chosen from a group comprising:
   a) constraints relating to cell dimension;
   b) constraints relating to the topology of a cell;
   c) constraints relating to the history of the model evolution;
   d) constraints relating to specific attributes of a cell; and
   e) constraints relating to geometrical indications of a cell.

8) A CAD/CAM device comprising:
   an input device;
   a central processing unit; and
   a display device;
   wherein the central processing unit runs an application program comprising code for:
   displaying a representation of a model;
   receiving input from a user specifying a modification of the model;
   translating said input into a command specifying the portion of the model to be modified, and the modification to be made;
   modifying said model in accordance with said command; and

transmitting said command via a network to other CAD/CAM devices connected to said network.

9)   The CAD/CAM device of Claim 8, further comprising a distributor component, a feature modeler, and a geometric modeler.

10)   The CAD/CAM device of Claim 8, further comprising a distributor component, and a feature modeler.

11)   The CAD/CAM device of Claim 9, wherein said geometric modeler employs persistent generic naming.

12)   The CAD/CAM device of Claim 8, wherein said application program further comprises code for:

receiving input comprising one or more constraints relating to cell information of the model;

for each constraint, determining which cells of the model meet the requirement of the constraint; and

generating a list of cells meeting all of the requirements of the constraints.

13)   The CAD/CAM apparatus of Claim 12, wherein the application program processes constraints chosen from a group comprising:

a)   constraints relating to cell dimension;

b)   constraints relating to the topology of a cell;

c)   constraints relating to the history of the model evolution;

d)   constraints relating to specific attributes of a cell; and

e)   constraints relating to geometrical indications of a cell.

14)   A CAD system comprised of a plurality of workstations linked together via a communications network, each workstation equipped with program code comprising a distributor component, and a feature modeler, and further

comprising program code for causing said workstation to perform a method comprised of:

storing data representing a model;

receiving input from a user specifying a modification of said model;

translating said input into a command specifying the portion of the model to be modified, and the modification to be made;

modifying said model in accordance with said command; and

transmitting said command via said network to other workstations in the system.

15) The CAD system of Claim 14, each workstation further comprising a geometric modeler.

16) The CAD system of Claim 15, wherein said geometric modeler employs persistent generic naming.

17) The CAD system of Claim 14, wherein said code further comprises code for:

receiving input comprising one or more constraints relating to cell information of the model;

for each constraint, determining which cells of the model meet the requirement of the constraint; and

generating a list of cells meeting all of the requirements of the constraints.

18) The CAD system of Claim 17, wherein the code causes the workstation to process constraints chosen from a group comprising:

a)   constraints relating to cell dimension;

b)   constraints relating to the topology of a cell;

c)   constraints relating to the history of the model evolution;

d)   constraints relating to specific attributes of a cell; and

e)   constraints relating to geometrical indications of a cell.

19) Computer executable code stored on a computer readable medium, the code comprising means for causing a CAD system to perform a method for:

displaying a representation of a model;

receiving input from a user specifying a modification of the model;

translating said input into a command specifying the portion of the model to be modified, and the modification to be made;

modifying said model in accordance with said command; and

transmitting said command via a network to other CAD/CAM devices.

20) Computer executable code stored on a computer readable medium according to Claim 19, the code further comprising means for causing a CAD system to perform a method for:

receiving from the network a command specifying a portion of the model to be modified, and the modification to be made; and

modifying said model in accordance with said command.

21) Computer executable code stored on a computer readable medium according to Claim 19, the code further comprising means for causing a CAD system to perform a method for:

receiving input comprising one or more constraints relating to cell information;

for each constraint, determining which cells of the model meet the requirement of the constraint; and

generating a list of cells meeting all of the requirements of the constraints.

22) Computer executable code stored on a computer readable medium according to claim 21, wherein said constraints used in said method are chosen from a group comprising:

a)   constraints relating to cell dimension;

b)   constraints relating to the topology of a cell;

c)   constraints relating to the history of the model evolution;

d)   constraints relating to specific attributes of a cell; and

e)   constraints relating to geometrical indications of a cell.

23)   A computer data signal embodied in a digital data stream comprising data representing the physical representation of a model, wherein said data signal is generated by a system operating according to a method comprising:

receiving at a first workstation input from a user specifying a modification of the model;

translating said input into a command specifying the portion of the model to be modified, and the modification to be made;

modifying said model at said first workstation in accordance with said command; and

transmitting said command via a network to other workstations on the network.

24)   The computer data signal embodied in a digital data stream according to Claim 23, wherein said data signal is generated by a system operating according to a method further comprising:

processing said command at a second workstation; and

modifying said model at said second workstation in accordance with said command.

25)   The computer system operation method of Claim 1, wherein said input comprises one or more constraints relating to cell information, said method further comprising:

a)   selecting the first constraint of said input and identifying the components of the CAD system that must be accessed to find geometric cells meeting the requirements of the constraint;

b)   searching the cells of the model and retaining as a subset only the cells that meet the requirement of the first constraint of said input;

c)   selecting the next constraint of said input and identifying the components of the CAD system that must be accessed to find geometric cells meeting the requirements of said next constraint;

d) searching the subset of cells and retaining in the subset only the cells that meet the requirement of said next constraint of said input; and

e) repeating steps c) and d) for each of the remaining constraints in said input.

26) The computer system operation method of claim 26, wherein the constraints are chosen from a group comprising:

a) constraints relating to cell dimension;

b) constraints relating to the topology of a cell;

c) constraints relating to the history of the model evolution;

d) constraints relating to specific attributes of a cell; and

e) constraints relating to geometrical indications of a cell.